

REVIEWS

CHINESE TECHNONATIONALISM

Evan A. Feigenbaum, *China's Techno-Warriors: National Security and Strategic Competition from the Nuclear to the Information Age*. Stanford: Stanford University Press, 2003. Pp. xiv + 339. US\$55.00 HB.

By Cong Cao*

As of this writing, China is in a state of euphoria over the success of its manned spaceflight of Shenzhou V (Shenzhou means 'magical vessel'). For China's political and scientific leadership, joining Russia and the United States in the manned space club is not only a display of the nation's growing technological prowess but also a further vindication of its high-tech development strategy. It is in this sense that Feigenbaum's book is timely in describing China's high-tech trajectory, and especially the roles played by the strategic weaponeers, in the past half century.

The main contribution of the book is its focus on technonationalism in China's high-tech development. Concerning the complex dimensions of both national economic well-being and national security, technonationalism claims that competition among modern nation states is basically one of technology. Technology is seen as a critical determinant of the rise and fall of major powers. Because of its decisive role in world power politics, technology becomes a precious commodity and a secret weapon that a nation is not supposed to share with foreign nations, especially those potential competitors. Therefore, technonationalists tend to restrict the transfer of technology, particularly high technology, between nations in assuming that the economic power generated by technological advance can also be converted into military power.

The Chinese variant of technonationalism – or, as Feigenbaum phrases it, "technonationalism with Chinese characteristics" (p. 39) – has been prompted by the Chinese leadership's concerns with the nation's lack of indigenous technology on the one hand, and its dependency on foreign technology on the other. Chinese technonationalism has also resulted from certain hard-learned lessons. Soon after China launched the strategic weapons program in the 1950s, its relationship with the former Soviet

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Union ruptured, which impelled it to develop strategic weapons on its own. Since the late 1970s, China has been genuine in embracing globalisation by opening its huge market to multinational corporations for the exchange of advanced technology. However, not only has China not received many of the technologies it needs, but some Western countries, presupposing potential strategic threats from China, have actually tightened the regulations on, or simply delayed, transferring certain dual-use technologies. Because of economic constraints, China has always been selective in implementing its ideas of technonationalism, giving particular attention to programs of high political visibility and strategic significance. The success of such high-profile programs has indeed boosted China's international status, which in turn reinforces the Chinese leaders' technonationalist outlook. In 1988, for example, when then China's paramount leader Deng Xiaoping attended the inauguration of the Beijing Electron–Positron Collider, a civilian research facility, he mentioned: "If China hadn't had the atomic bomb, the hydrogen bomb, if we hadn't launched satellites, it couldn't be said that China is an influential great power. We couldn't occupy our present international position and could not have achieved such an international status" (cited at the beginning of Feigenbaum's book).

Feigenbaum correctly observes that in addition to mobilising the entire nation's human, material, and financial resources for strategic weapons programs, China's political leadership also allowed that research community to operate on its own terms. Its technical personnel enjoyed the free flow of information, the access to foreign technical literature, the open debate, the use of peer review – in short, a relatively autonomous research environment unavailable to other scientists.

In the 1980s, the weaponeers noticed a paradigm shift in defence research in advanced nations – the dominant model had changed from the military-to-civilian (the 'spin-off') model to the commercial-to-defence (the 'spin-on') model – and they intended to introduce the latter through the establishment of the State High Technology Research and Development Program (863 Program). (Strangely, Feigenbaum's discussion of this topic ignores a very important background – the reform of China's science and technology management system.) The 863 Program, which focuses on generic capability building-up, has been directed by the State Science and Technology Commission (SSTC) and later by the succeeding Ministry of Science and Technology (MOST), a governmental agency of civilian science policy-making and research administration. This fact itself indicates a departure from the ideologies, policies, practices, and organisational solutions of the strategic weapons program, although, to some

extent, the practice of the strategic weapons program has persisted. The manned spaceflight program is an example.

On the other hand, the strategic weapons program does have its advantage in coordinating research activities across various jurisdictions, military and civilian. During the post-reform era, too many bureaucratic fiefdoms have been struggling with each other over political and economic interests and dispensing scarce resources on frequently redundant research programs with competing priorities. The result is ineffective spending in research and development. This may also help explain why Chinese scientists lost an opportunity to show off their growing scientific prowess in the recent fight against SARS. Thus, instead of ‘breaking from the past’ as Feigenbaum seems to see it, China is carrying on some of the legacy of the strategic weapons program.

This is a well-researched book overall, but Feigenbaum also makes some “experimental”, “eclectic”, and “bold” (p. xvi) claims that seem either exaggerated or speculative. For example, in Chapter 2, he interprets the power struggle in the 1950s and ’60s between the strategic weaponeers (represented by Marshal Nie Rongzhen, China’s science czar at that time) and the advocates of conventional weapons (such as Marshal He Long and General Luo Ruiqing). Since the Chinese sources he uses in the book do not make such a suggestion, we are left to assume that he obtained this information directly from his interviews with high-ranking Chinese military officials. However, the strategic weapons program was firmly on top of Chinese leadership’s agenda at the time. It is true that there might have been differences in opinion within the political and military establishment, but definitely not the kinds of serious confrontations Feigenbaum implies. As a matter of fact, the establishment of the National Defence Industries Office under the leadership of Luo in the early 1960s was to coordinate the research and production of the defence industry, so that He, head of the National Defence Industrial Commission, and Nie, head of the National Defence Science and Technology Commission, could focus on the vision and strategy rather than the operation of the defence industry.

There is another problem with Feigenbaum’s interpretation. He argues that in the reform era, with the People’s Liberation Army’s acquisitions shifting from strategic to conventional weapons, the strategic weaponeers felt the urgency to reposition themselves in Chinese science and politics. His argument goes like this. Previously, the strategic weaponeers had thrived under the patronage of such high-ranking political and military leaders as Nie. In the 1980s, however, they no longer had the same kind of political support. Although Nie could still exert his influence through his son-in-law and daughter – both holding leadership positions in the

National Defence Science, Technology, and Industry Commission – it was nevertheless a loss of political power; the younger generation's political standing in the party was less prestigious than Nie's before (Chapters 3 and 4). This argument neglects the fact that on a broad political scale, the generation of the revolutionaries has conceded their power to that of the technocrats. The technocrats have been promoted on different criteria, and political patronage works differently today.

The book outlines the key figures (pp. 143–151) involved in the initiation of the 863 Program; but it should say more about Zhu Lilan, whose appointment to the post of vice commissioner of the SSTC and promotion to the head of the MOST was because of her role in the 863 Program. To balance the discussion, the book should also mention progress in agricultural biotechnology, which is one of the areas that has benefited most from the program (pp. 177–188). More problematic, perhaps, is Feigenbaum's overall positive assessment of the program; in hindsight, the 863 Program did not achieve breakthroughs commensurate with the level of support it received in the first 15 years – an investment of RMB5.9 billion (rather than the RMB100 billion cited in the book and attributed to Chen Zhangliang, a leading agricultural biologist, on p. 166). Therefore, from the perspective of technonationalism, which insists on developing indigenous technology, this heavily-invested and well-publicised program has not been an obvious success.

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